Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of controlling a blood pump implanted in a patient, comprising:

operating the pump at a predetermined speed;

monitoring the patient's diastolic pump flow rate, wherein the diastolic pump flow rate is [[a]] an isolated flow contribution below a mean flow rate; and

changing the predetermined speed in response to the diastolic pump flow rate.

2. (Previously Presented) The method of claim 1, further comprising:

monitoring the patient's heart rate; and

changing the predetermined speed in response to at least one of the diastolic pump flow rate or the heart rate.

3. (Previously Presented) The method of claim 1, wherein changing the predetermined speed includes increasing the pump speed in response to an increase in the diastolic pump flow rate.

4. (Previously Presented) The method of claim 2, wherein changing the predetermined speed includes increasing the pump speed in response to an increase in the heart rate.

5. (Previously Presented) The method of claim 1, wherein changing the predetermined speed includes decreasing the pump speed in response to a decrease in the diastolic pump flow rate.

6. (Previously Presented) The method of claim 2, wherein changing the predetermined speed includes increasing the pump speed in response to an increase in the diastolic pump flow rate.

7. (Previously Presented) A pump system, comprising:

a pump; and

a controller having an input for receiving a blood flow rate signal, the controller being programmed to extract a diastolic pump flow rate from the blood flow rate signal and provide a control signal to the pump to vary the speed of the pump in response to the diastolic pump flow rate, wherein the diastolic pump flow rate is a flow contribution below a mean flow rate.

8. (Previously Presented) The pump system of claim 7, further comprising an implantable flow measurement device having an output for providing the flow rate signal.

9. (Previously Presented) The pump system of claim 7, wherein the controller is further programmed to vary the speed of the pump in response to heart rate changes.

10. (Previously Presented) The pump system of claim 7, wherein the controller is programmed to increase the speed of the pump in response to an increase in the diastolic pump flow rate.

11. (Previously Presented) The pump system of claim 7, wherein the controller is programmed to decrease the speed of the pump in response to a decrease in the diastolic pump flow rate.

12. (Previously Presented) The pump system of claim 9, wherein the controller is programmed to increase the speed of the pump in response to an increase in at least one of the diastolic pump flow rate or the heart rate.

13. (Previously Presented) The pump system of claim 12, wherein the controller is programmed to decrease the speed of the pump in response to a decrease in the diastolic pump flow rate.

14. (Previously Presented) The method of claim 1, further comprising:

setting the predetermined speed of the pump in accordance with activities performed by the patient.

15. (Previously Presented) The method of claim 14, wherein the activities are sleeping, normal activity or high energy exertion.

16-18. (Canceled)

19. (Previously Presented) The pump system of claim 7, further comprising an implantable pressure sensor.

20. (Previously Presented) The pump system of claim 19, wherein pressure sensor data from the pressure sensor may be use to derive diastolic pump flow rate information.

Please add new claims 21-23, as follows:

21. (New) The method of claim 1, wherein the diastolic pump flow rate is isolated from a systolic flow rate and the mean flow rate.

22. (New) The pump system of claim 7, wherein the diastolic pump flow rate is extracted separately from a systolic flow rate.

23. (New) The pump system of claim 7, wherein the diastolic pump flow rate is separated out from the flow rate signal.